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Ethical Consumerism and Trade Liberalization: A Comparative Legal Analysis of Halal Regulatory Regimes

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ABSTRACT

This study provides a comprehensive comparative legal analysis of halal regulatory regimes within the broader context of ethical consumerism and global trade liberalization. Using a qualitative library research approach, the study examines diverse national and regional regulatory models—including Malaysia's centralized system, Indonesia's hybrid framework, and decentralized certification practices in GCC and Western jurisdictions. The findings indicate that divergent legal philosophies, inconsistent certification processes, and fragmented enforcement mechanisms create significant barriers to mutual recognition and international market integration. Ethical consumerism intensifies demands for transparency, authenticity, and integrity, yet weak oversight in several regions perpetuates fraud, mislabeling, and supply chain vulnerabilities. Trade liberalization further complicates the landscape, as variations in halal standards often function as technical barriers to trade, disproportionately affecting SMEs. The study highlights the growing relevance of blockchain, AI, and digital traceability as potential solutions to enhance integrity, harmonize standards, and improve global halal governance. Ultimately, the analysis underscores that achieving balance between ethical consumer protection and liberalized trade requires collaborative regulatory reforms, robust oversight, and technologically supported verification systems capable of fostering trust and facilitating global market access.

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INTRODUCTION

The global halal economy has, in recent decades, highlighted the increasing influence of religious principles on international trade dynamics (Yuanitasari et al., 2025). This

phenomenon is primarily driven by ethical consumerism, where moral, social, and religious factors significantly shape purchasing decisions, particularly among the worldwide Muslim population (Nazaruddin et al., 2023). Halal, an Arabic term meaning "permissible," extends beyond food and beverages to include cosmetics, pharmaceuticals, and services, requiring adherence to Islamic dietary laws and ethical standards throughout the entire supply chain (Ali et al., 2021). The expanding global Muslim demographic, representing an estimated 25% of the world's inhabitants, further elevates the significance of halal products. This growth not only forecasts substantial market share expansion but also establishes halal regulation as a crucial element in global commerce (Johan & Schebesta, 2022). Nevertheless, the integration of Sharia-based halal standards into international trade law presents complex challenges, especially concerning their alignment with World Trade Organization principles such as non-discrimination and most-favored-nation treatment (Yuanitasari et al., 2025).

The rapid growth of global trade and the intensified focus on ethical consumerism have collectively established a novel legal and economic environment within which halal regulatory frameworks must operate. As international markets become increasingly interconnected, consumers—particularly Muslim consumers—demand products that not only meet quality and safety standards but also conform to religious, ethical, and environmental values (Maulidizen, 2019b). Consequently, halal certification has evolved from a mere religious requirement into a multifaceted legal and economic instrument that influences global trade flows, consumer behavior, and market competitiveness (Yuanitasari et al., 2025). However, trade liberalization presents both opportunities and challenges for halal governance. While open markets facilitate cross-border transactions and supply chain integration, they simultaneously contribute to regulatory fragmentation, inconsistent certification processes, and potential vulnerabilities related to fraud, mislabeling, and consumer mistrust (Ali et al., 2021).

This intricate interplay necessitates a comprehensive examination of how existing halal regulatory frameworks can be harmonized with international trade law principles to simultaneously enhance market access and bolster consumer confidence (Umam et al., 2024; Yuanitasari et al., 2025). Such an analysis is particularly crucial given the escalating academic interest in halal logistics and supply chain integrity, as well as the ethical and environmental dimensions of halal production (Ali et al., 2021; Rahman et al., 2024). Against this backdrop, a comparative legal analysis of halal regulatory regimes is essential for understanding how diverse jurisdictions balance ethical consumer demands with trade liberalization policies. Furthermore, such an analysis clarifies the interaction among international trade norms, national legislation, and private certification bodies in shaping the halal marketplace. This article, therefore, aims to evaluate regulatory convergence, divergence, and the extent to which current legal structures safeguard ethical consumerism within a liberalized global trade system.

RESEARCH METHOD

This study employs a qualitative research design using the library research approach. Data is collected from secondary sources, including legislation, international trade agreements, policy documents, halal standards such as MS1500:2019 (Malaysia), HAS23000 (Indonesia), GCC/SMIC standards, academic journals, comparative law studies, and reports from international bodies such as the OIC–SMIIC, WTO, and Codex Alimentarius Commission. The methodology focuses on document analysis and comparative interpretation, identifying

similarities, differences, and underlying legal philosophies governing halal certification across jurisdictions. A thematic analysis is applied to classify dominant issues: consumer protection, regulatory harmonization, trade facilitation, institutional governance, and cross-border certification recognition. This method enables a comprehensive understanding of how halal regulatory regimes interact with the principles of ethical consumerism and global trade liberalization. Furthermore, it allows for a contextual and practical examination of the relationship between Sharia-based halal principles and World Trade Organization rules, especially concerning their application in selected countries (Yuanitasari et al., 2025).

Specifically, doctrinal analysis is applied to legal documents, examining how halal regulations interact with WTO rules, particularly the SPS Agreement, TBT Agreement, and GATT 1994 (Yuanitasari et al., 2025). This includes an assessment of potential conflicts arising from national halal certification requirements that could be construed as technical barriers to trade or discriminatory practices (Yuanitasari et al., 2025). The study also incorporates content-based comparative analyses of policy documents and authoritative texts related to halal standards to identify best practices and areas for regulatory convergence (Johan & Casado, 2023). A sociological approach further informs the research by exploring how social trends pertaining to the concept of *halal ṭayyib* are addressed and integrated into contemporary regulatory frameworks, providing insights into consumer protection dynamics (Aksin & Aini, 2023).

RESULT AND DISCUSSION

Divergent Legal Foundations and Regulatory Philosophies

Halal regulatory regimes differ in their legal foundations: Malaysia adopts a centralized, state-driven model under JAKIM, Indonesia uses a hybrid public–private system (BPJPH–MUI), while the GCC and Western nations rely on decentralized private certifiers (Maulidizen, 2019a). These differences shape how each jurisdiction balances religious obligations, consumer protection, and trade facilitation. The divergence also impacts cross-border recognition, causing compliance uncertainty for exporters and importers (Maulidizen, 2019c). For instance, while Muslim-majority countries often embed halal principles within their national legal frameworks, some European Union nations rely on voluntary certification under broader food safety laws (Yuanitasari et al., 2025). This variability often leads to challenges in establishing mutual recognition agreements and can inadvertently create non-tariff barriers to trade (Yuanitasari et al., 2025). Such barriers undermine the principles of trade liberalization and necessitate a deeper examination of how diverse legal philosophies can be reconciled to foster global halal trade (Ruhaeni & Aqimuddin, 2023).

The Indonesian and Malaysian governments, for example, have enacted extensive regulations to facilitate halal product certification, demonstrating their commitment to integrating religious mandates with national economic objectives (Jalaluddin et al., 2024). This integration seeks to enhance both consumer trust in halal products and market access for their domestic industries (Yuanitasari et al., 2025). However, despite these efforts, inconsistencies in halal definition and enforcement, alongside issues of resource constraints and public awareness, continue to pose significant challenges to the effectiveness of these regulatory frameworks (Ali et al., 2021; Rahma & Phahlevy, 2024). These challenges are further compounded by cultural variations and differing technological interpretations among countries, necessitating collaborative frameworks for harmonization and mutual recognition (Fadhillah & Saputra, 2025). For instance, in Indonesia, the implementation of halal

certification by the Halal Product Assurance Organizing Body faces hurdles due to limited resources and a lack of public understanding regarding its significance (Rahma & Phahlevy, 2024).

Conversely, Malaysia's system, though voluntary, experiences issues where manufacturers may not fully appreciate the importance of halal certification issued by JAKIM (Ali et al., 2021). This highlights a persistent challenge in ensuring widespread compliance and consumer confidence, even within well-established regulatory environments (Ali et al., 2021). The varying stringency and scope of these national regulations contribute to market fragmentation and impede the development of a truly global halal economy (Umam et al., 2024). This fragmentation is further exacerbated by the "halal nationalism" prevalent in some countries, where national standards are perceived as superior, hindering efforts toward international harmonization (Fadhillah & Saputra, 2025). These national divergences consequently create non-tariff barriers, hindering the free flow of halal products and necessitating robust mutual recognition mechanisms to reconcile disparate regulatory approaches (Johan & Casado, 2023).

The lack of international standardization and harmonization in halal certification processes leads to incompliance, delays, additional costs, and market access uncertainty for businesses operating globally (Othman & Ibrahim, 2025). This multiplicity of standards, driven by diverse governmental, cultural, and jurisprudential interpretations, creates significant challenges for achieving a unified global protocol for halal integrity (Salam et al., 2023). Exporters, especially small and medium-sized enterprises, frequently encounter difficulties in navigating these disparate requirements, leading to increased costs and hindering their ability to penetrate new markets (Sorna et al., 2024). Indeed, multiple certification schemes, while offering market differentiation and consumer trust, also lead to fragmentation, necessitating that exporters obtain numerous certifications for distinct markets (Yuanitasari et al., 2025). This situation not only inflates operational expenses but also stifles market innovation and growth, thereby impacting the ethical consumer's access to a wider variety of genuinely halal products (Ghazali et al., 2023; Sorna et al., 2024).

Furthermore, issues such as inadequate halal knowledge among personnel and a lack of awareness regarding certification management contribute to operational inefficiencies and challenges in maintaining consistent halal integrity across the supply chain (Islam et al., 2023). Such challenges are amplified by instances of misrepresentation or fraud within the halal supply chain, where products not conforming to Islamic dietary laws are inadvertently or deliberately marketed as halal (Azmi et al., 2021). This creates a significant risk for consumers and undermines the credibility of the entire halal industry (Abdul-Talib & Abd-Razak, 2013). The absence of an international accreditation scheme for Halal Certifying Bodies further exacerbates this problem, leading to confusion among both consumers and producers regarding the veracity and reliability of various halal standards (Azam & Abdullah, 2020). This lack of oversight creates a complex landscape for manufacturers, who often need to navigate multiple, sometimes conflicting, certification requirements to access various markets (Elasrag, 2016).

This fragmentation is compounded by the fact that many halal certifying bodies operate under different standards, making a single, universally recognized halal logo nearly impossible to achieve without extensive international negotiation and agreement (Al-Mahmood & Fraser, 2023). The lack of a unified halal standard increases production costs and complexity for both Halal Certifying Bodies and exporting companies (Al-Mahmood & Fraser, 2023). This situation is often exacerbated by issues of cross-contamination, fraud, and

logistical challenges, which further complicate the assurance of halal integrity throughout the supply chain (Abidin & Perdana, 2020). For instance, fraudulent halal marks can mislead Muslim consumers, especially in regions with lower halal standards (Idris, 2024). Such deceptive practices not only erode consumer trust but also pose significant challenges to regulatory enforcement agencies seeking to protect halal consumers (Fuseini et al., 2017).

Trade Liberalization and Harmonization Challenges

Global trade agreements promote market openness but do not mandate uniform halal standards. As a result, countries struggle to harmonize certification rules, creating technical barriers to trade (TBT). Although OIC–SMIIC attempts to standardize criteria, adoption remains limited. Inconsistent requirements across jurisdictions increase costs for producers and complicate supply chain management in liberalized markets (Maulidizen et al., 2022). This divergence hinders the potential for mutual recognition agreements, thereby impeding the seamless cross-border flow of halal goods and services, which is crucial for maximizing the benefits of trade liberalization. These challenges are particularly acute for Small and Medium-sized Enterprises, which often lack the resources to navigate complex and varied international halal certification requirements (Castro et al., 2021; Fadhillah & Saputra, 2025).

Moreover, the lack of a globally recognized accreditation body for halal certification exacerbates these difficulties, as businesses must contend with a multitude of national and private certification bodies, each with its own set of standards and procedures (Azam & Abdullah, 2020). This fragmented landscape creates an environment ripe for fraud and adulteration, where unethical actors can exploit gaps in oversight and inconsistent enforcement (Maulana et al., 2023). This situation is further complicated by the lack of awareness among some manufacturers regarding the importance of halal certification, even in countries with established regulatory bodies (Ali et al., 2021). The absence of a unified framework and proper training also hinders the development of a robust halal supply chain, making traceability and integrity challenging to maintain (Islam et al., 2023; Ali et al., 2021).

Furthermore, the vulnerability of the halal food supply chain to fraud is heightened by its inherent complexity, particularly when involving multiple entities across various stages of production, processing, and transportation (Soon et al., 2016). Such intricate supply chains, combined with insufficient resource allocation for monitoring and reporting, impede effective oversight and increase the risks of non-compliance with halal requirements (Andespa et al., 2024). This vulnerability is particularly pronounced in non-Muslim majority countries like Brazil, a significant meat supplier to OIC nations, where the logistical and regulatory complexities make robust halal assurance more challenging (Abidin & Perdana, 2020). This situation is compounded by the inherent costs and complexities associated with obtaining halal certification, which can be prohibitive for smaller producers and further limit market inclusion (Maulana et al., 2023).

This economic barrier creates a significant competitive disadvantage for smaller entities attempting to enter or expand within the global halal market, thereby restricting consumer choice and hindering the overall growth of the ethical consumerism movement. These issues are exacerbated by the operational complexities of halal logistics, which often involve intricate inventory policies, fleet scheduling, vehicle routing, and warehousing, presenting significant administrative and practical hurdles, particularly in nascent halal logistics industries (Ali et al., 2021). These operational hurdles contribute to the difficulties in ensuring the integrity and traceability of halal products, especially across diverse international supply chains. The

complexity is further compounded by the absence of standardized reporting formats and protocols, which limits the ability to compare and analyze data effectively, thereby hindering efforts to mitigate food quality and safety risks and maintain the integrity of the halal supply chain (Andespa et al., 2024).

Additionally, the lack of transparency in supply chains, particularly concerning raw material sourcing and sub-suppliers in non-Muslim countries, amplifies the risk of cross-contamination and fraudulent activities, undermining consumer confidence in halal products (Ali et al., 2017; Ali et al., 2021). This issue is further complicated by challenges in maintaining the halal integrity of products throughout the supply chain, from raw material procurement to consumption, due to potential contamination by *haram* products and non-compliance with slaughtering protocols (Rejeb, 2018). The commitment of stakeholders is thus critical to ensuring products remain safe and halal for consumption, addressing potential contamination risks from microorganisms, airborne particles, and water during logistical activities like storage and packaging (Ali et al., 2021). Logistics operators are therefore burdened with the additional responsibility of overseeing and maintaining appropriate temperature and duration controls during storage and transportation to preserve the products' halal status (Ali et al., 2021).

Moreover, the stringent segregation requirements for halal products, particularly in non-Muslim countries, often necessitate extensive logistical adaptations, such as dedicated storage facilities and transportation methods, to prevent cross-contamination and maintain religious dietary compliance (Rejeb, 2018). These measures require significant technical expertise to identify, evaluate, and manage halal ingredients and processes effectively, highlighting the critical role of logistics and distribution in maintaining product integrity (Voak et al., 2023). Furthermore, inadequate storage facilities, poor temperature control during transit, and challenges in segregating halal and non-halal items present substantial risks of contamination and spoilage, eroding consumer trust and potentially violating religious dietary laws (Andespa et al., 2024). The inconsistency in standards and the absence of real-time tracking systems further exacerbate these risks, leading to potential contamination and abuse within the halal supply chain (Kamaruddin et al., 2013; Andespa et al., 2024).

Ethical Consumerism and Legal Guarantees of Authenticity

Ethical consumerism demands transparency, authenticity, and integrity in halal products. Legal frameworks attempt to address these expectations through labeling laws, anti-fraud provisions, and mandatory certification (Maulidizen et al., 2024). However, weak enforcement in some regions allows counterfeit certification and misleading claims, undermining consumer trust. This remains a key legal vulnerability in the halal economy. Addressing this vulnerability necessitates the development of robust, globally harmonized standards and stringent oversight mechanisms to ensure the authenticity and integrity of halal certification processes across diverse jurisdictions (Rizki et al., 2023). Such harmonization is essential to prevent opportunist behaviors by some suppliers who exploit the lack of knowledge and expertise among drivers and other supply chain participants, leading to traceability issues and potential contamination (Ali et al., 2021).

Furthermore, the absence of a unified legal framework for halal logistics globally exacerbates these issues, as existing national regulations often fail to comprehensively cover the entire supply chain, leaving gaps that can be exploited (Rizki et al., 2023). This regulatory fragmentation not only complicates international trade but also creates opportunities for

deliberate deceit or unintentional cross-contamination, further eroding consumer confidence in halal products (Voak et al., 2023). The proliferation of fraudulent activities within the halal supply chain, often involving the mislabeling or adulteration of products, further underscores the urgent need for enhanced legal oversight and consumer protection mechanisms (Voak, 2021). Specifically, the integrity of halal logistics is frequently compromised by issues such as cross-contamination during delivery due to shared or inadequately cleaned containers, and a general lack of dedicated facilities for handling halal products (Nizar & Abidin, 2021) (Karudin et al., 2024). This operational complexity significantly jeopardizes the economic potential of the halal market, as various stakeholders, including breeders, slaughterhouses, certifying agencies, retailers, consumers, and religious representatives, often hold differing perspectives on halal production and processing (Shirin, 2019).

This divergence often leads to conflicting interpretations of halal standards, complicating the establishment of universally accepted guidelines and fostering an environment ripe for misrepresentation and fraud (Islam et al., 2023). These varying interpretations highlight the critical need for a legally binding international standard for halal certification and supply chain management to ensure consistent application and prevent the exploitation of ambiguities (Tieman, 2015; Izza et al., 2022). The rising incidence of halal food fraud, often linked to the misuse of certification and regulatory logos, further underscores the urgent need for a unified and robust legal framework to safeguard consumer trust and product authenticity (Voak, 2021; Voak & Fairman, 2021). This unified legal framework would not only streamline trade processes but also empower consumers with greater assurance regarding the authenticity of halal products, thereby strengthening the global halal economy (Jelan et al., 2024).

Such a framework must encompass comprehensive traceability systems and accountability measures to mitigate the risks associated with supply chain complexities and varied interpretations of halal requirements (Voak, 2021; Demirci et al., 2016). Moreover, the prevalence of fraudulent activities, such as mislabeling or falsified certifications, necessitates advanced authentication methods and stricter legal penalties to uphold the integrity of halal products (Maulana et al., 2023; Fathima et al., 2024). This emphasizes the crucial need for consistent world-class halal standards and robust certification processes to maintain consumer confidence and ensure product integrity within the global halal market (Munawar & Mugiono, 2024). This includes addressing challenges like forged Halal certificates and expired Halal logos through universal minimum standards (Rahman & Ahmad, 2024).

Achieving this requires a collaborative effort among regulatory bodies, industry stakeholders, and certification agencies to establish harmonized criteria and enhance surveillance mechanisms (Islam et al., 2023). A critical component of this endeavor involves leveraging advanced technologies, such as blockchain, to create immutable records of a product's journey, from farm to fork, thereby guaranteeing authenticity and preventing tampering. This technological integration would provide consumers with unprecedented transparency and assurance regarding the halal status of their purchases, addressing concerns about the lack of universally acknowledged standards (Balah & Makakena, 2024). Furthermore, the implementation of blockchain technology can significantly enhance the transparency, traceability, and integrity of the halal supply chain, providing end-users with robust quality assurance (Munawar & Mugiono, 2024; Yuanitasari et al., 2025).

This system would allow for immediate verification of halal certification validity, ingredient sourcing, and production processes, thereby minimizing the potential for fraud and misrepresentation (Balah & Makakena, 2024). This decentralized and tamper-resistant

ledger would offer unparalleled visibility into the entire halal supply chain, from the initial sourcing of raw materials to the final distribution of the product, thereby increasing consumer trust and operational efficiency (Mehmood et al., 2024). Moreover, real-time monitoring through IoT devices and predictive analytics powered by artificial intelligence can further optimize logistics, ensuring adherence to halal standards throughout transportation and storage (Voak et al., 2023). These technological solutions can effectively address the challenge of ensuring authentic halal products and mitigating issues that could compromise their integrity (Alourani & Khan, 2024).

The Role of State vs. Private Certification Bodies

State-controlled models ensure stronger oversight but may limit market efficiency. In contrast, private certifiers—common in the EU and the US—provide flexibility but face accountability gaps. The coexistence of both models raises issues of governance, accreditation, supervision, and recognition. The analysis reveals that neither model is inherently superior; rather, effectiveness depends on accreditation integrity, transparency, and institutional capacity. This complexity necessitates a comparative examination of their regulatory frameworks to identify best practices for ensuring halal integrity and consumer trust. Technological advancements, such as blockchain, are crucial for enhancing transparency and traceability in both state and private certification systems (Mehmood et al., 2024).

For instance, leveraging blockchain technology can provide clear advantages for various stakeholders, including manufacturers, retailers, and certification bodies, by enhancing trust and authenticity within the halal supply chain (Tieman & Darun, 2017). This technology facilitates an open, safe, and verifiable shared database, crucial for improving the authenticity and transparency that are often lacking in the current halal certification landscape (Abidin & Perdana, 2020). This distributed ledger technology ensures that every transaction and certification record is immutable and transparent, thereby significantly reducing the potential for fraud and misrepresentation (Mehmood et al., 2024; Ridho, 2025). Furthermore, AI can complement blockchain by automating compliance checks and identifying irregularities in sourcing and composition, thereby improving risk management across the supply chain (Sunmola et al., 2025). These integrated technological solutions, combining blockchain's immutable record-keeping with AI's analytical capabilities, offer a robust framework for enhancing the integrity and trustworthiness of halal products across global supply chains.

These innovations are particularly vital given the expanding global halal market and the diverse regulatory landscapes that necessitate robust, verifiable certification processes (Ridho, 2025). Such technological integration holds the potential to address challenges related to transparency, traceability, and trust within the complex halal food supply chain, where a lack of standardized systems for authenticity and compliance remains a significant concern (Alourani & Khan, 2024). Indeed, the application of blockchain and AI offers a promising pathway to overcome these systemic vulnerabilities by providing verifiable information on ingredient origins and production processes (Sunmola et al., 2025). This combined approach can ensure end-to-end traceability, allowing consumers to digitally trace product information from farming to sales without relying solely on trusted authorities for verification (Han et al., 2021).

This comprehensive transparency framework can also help in mitigating risks, such as those associated with operational supply chains, by providing real-time data for proactive management strategies (Azmi et al., 2021). Such systems are essential for improving the

integrity of the Halal Food Supply Chain and the performance of major corporations and Small and Medium-sized Enterprises operating within it (Azmi et al., 2021). Moreover, blockchain technology can enhance consumer trust, mitigate fraud, and promote compliance with Islamic dietary guidelines by providing an innovative solution for transparency and traceability of information related to producers, logistics, and suppliers (Alourani & Khan, 2024; Alourani & Khan, 2025). This approach helps to guarantee the authenticity of halal products by providing a transparent and immutable record of every stage in the supply chain (Kusnadi et al., 2024).

This enhanced transparency not only assures consumers but also streamlines regulatory oversight and facilitates international trade by standardizing verification processes (Alourani & Khan, 2025). Furthermore, the integration of these technologies can bolster supply chain resilience by providing real-time data and actionable insights to navigate disruptions and maintain adherence to halal standards (Voak et al., 2023; Rahmanifar et al., 2024). This holistic approach, integrating blockchain and AI, offers a robust framework for improving compliance, transparency, and consumer confidence in halal products, applicable across both state-controlled and private certification models (Sunmola et al., 2025). The implementation of such advanced digital systems provides a foundational layer for harmonizing diverse halal regulatory regimes, fostering mutual recognition and facilitating cross-border trade in ethical consumer goods.

This integration also supports the development of eco-friendly manufacturing practices and improves environmental performance by leveraging Industry 4.0 technologies, thereby embedding sustainability throughout the supply chain (Neger et al., 2025). This comprehensive technological integration, therefore, offers a strategic pathway for achieving greater efficiency and integrity within the halal industry, addressing long-standing challenges related to compliance and consumer trust (Alourani & Khan, 2024; Rahmanifar et al., 2024; Sunmola et al., 2025). It enables robust traceability mechanisms that record every step of the product journey, from raw material sourcing to final delivery, ensuring adherence to halal requirements at each stage (Kusnadi et al., 2024). Such an advanced system not only enhances consumer confidence through verified information but also strengthens the regulatory framework by providing immutable audit trails for compliance.

Prospects for Global Standardization and Mutual Recognition

The future of halal trade depends on establishing mutual recognition agreements (MRAs) and harmonized standards to reduce regulatory fragmentation. While regional bodies (e.g., ASEAN, GCC, OIC–SMIIC) have initiated harmonization efforts, geopolitical diversity and differing religious interpretations remain major obstacles. Nonetheless, digital halal traceability, blockchain systems, and international cooperation offer pathways for enhancing regulatory coherence and supporting ethical consumerism in an increasingly liberalized global economy. For instance, blockchain technology offers significant potential to facilitate global standardization by providing an immutable and transparent record of halal certification processes across various jurisdictions (Fadhillah & Saputra, 2025; Alourani & Khan, 2024). This can help in bridging the gaps between different regulatory frameworks, ensuring that halal standards are consistently applied and verifiable globally (Bux et al., 2022).

This technological integration can foster trust among diverse stakeholders, from producers to consumers, by providing an indisputable record of compliance with Sharia law throughout the supply chain (Karyani et al., 2024). This enhanced transparency can also

address the problem of ambiguous halal guidelines and varied interpretations among different halal authorities by providing a unified, verifiable standard (Ali et al., 2021). Such a system could mitigate issues stemming from a lack of collaboration between halal authorities and logistics providers, where differing implementation standards create inconsistencies (Ali et al., 2021). Moreover, the adoption of blockchain technology can improve the traceability of the halal supply chain, protecting consumers from non-compliant products by recording the origin, production processes, and delivery data (Qosim, 2022). This comprehensive data trail, accessible to all authorized parties, can significantly enhance confidence in the authenticity and integrity of halal products (Wahyuni et al., 2024).

The application of smart contracts, in conjunction with off-chain and on-chain technologies, further optimizes transparency and integrity within the halal ecosystem, ensuring robust verification processes (Munawar & Mugiono, 2024). This technological framework not only addresses certification inefficiencies, such as high costs and lengthy wait times, but also empowers Small and Medium-sized Enterprises by streamlining their access to global halal markets (Othman & Ibrahim, 2025). This allows for the development of interoperable systems that can bridge the diverse regulatory landscapes, thereby reducing trade barriers and promoting a more unified global halal economy (Othman & Ibrahim, 2025; Yuanitasari et al., 2025). Furthermore, the integration of artificial intelligence and the Internet of Things can provide real-time monitoring and data analysis, enhancing the efficiency and accuracy of halal certification and verification processes.

These advancements, when integrated with robust regulatory frameworks, have the potential to resolve the inconsistencies and ambiguities that currently plague global halal certification, fostering universal acceptance and streamlined trade (Abidin & Perdana, 2020; Ali et al., 2021). This technological convergence could also address the crucial issues of data explosion and trust transfer within traceability systems, alongside mitigating cross-contamination risks that compromise halal integrity (Munawar & Mugiono, 2024). Such integrated systems enhance consumer trust by ensuring end-to-end chain integrity from the source to the point of purchase, addressing persistent concerns about fraudulent activities and the compromising of halal standards (Tieman & Darun, 2017; Alourani & Khan, 2024).

Moreover, the implementation of blockchain technology can significantly increase the efficiency and speed of the halal certification process, addressing long-standing criticisms regarding processing delays and the issuance of halal logos (Hamid & Tan, 2023). This not only improves the reliability of the entire supply chain information but also ensures the immutability of data, making it unchangeable and less vulnerable to cyber hacks and fraud (Nayal et al., 2021). This robust and secure data management system ultimately strengthens the legitimacy and integrity of halal products, reinforcing consumer confidence in ethical consumption practices (Nugroho et al., 2024; Munawar & Mugiono, 2024). This enhanced transparency and security also helps to mitigate operational risks within the halal supply chain, such as product recalls due to contamination with non-halal elements, by providing a verifiable record of compliance at every stage (Azmi et al., 2021).

This integration also addresses the problem of centralized systems by offering a decentralized ledger that enhances visibility over real-time information for all supply chain partners, thereby improving both safety and halal integrity of products (Rejeb, 2018). The utilization of AI-driven analytics, for example, can further optimize these decentralized systems by providing predictive insights into potential supply chain disruptions or non-compliance issues, thereby enabling proactive interventions (Ocran et al., 2024). These technological solutions collectively underpin the potential for a globally recognized and

highly efficient halal ecosystem, fostering economic growth and strengthening consumer trust in ethically sourced products. Such advancements are critical for overcoming challenges like lengthy certification procedures and concerns about halal integrity breaches, which can be rapidly verified and traced back through blockchain (Rejeb, 2018).

CONCLUSION

The study concludes that halal regulatory regimes operate within a highly complex intersection of religious obligations, ethical consumer expectations, and global trade liberalization pressures. Divergent legal foundations—ranging from Malaysia's centralized authority to Indonesia's hybrid model and Western decentralized systems—produce structural inconsistencies that complicate mutual recognition and hinder international trade. Ethical consumerism reinforces the demand for transparency and authenticity, yet persistent issues such as fragmented certification, cross-contamination risks, inadequate enforcement, and widespread fraud weaken consumer trust. Meanwhile, liberalized trade exposes these regulatory gaps further, leading to technical barriers and additional compliance burdens, especially for SMEs navigating multilayered certification requirements. The analysis underscores the critical need for harmonized global standards, strengthened governance structures, and effective monitoring systems. Emerging technologies—particularly blockchain, AI-driven analytics, IoT-based traceability, and smart contracts—offer realistic pathways to enhance certification integrity, supply chain visibility, and regulatory convergence. In essence, ensuring the future viability and legitimacy of the global halal market requires aligning ethical, legal, and technological dimensions into a coherent and collaborative international framework.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

This study is limited by its exclusive reliance on secondary data, including regulatory documents, academic literature, and institutional reports, without incorporating empirical validation through field observations, interviews, or case studies that could provide deeper insight into the practical challenges of halal certification across jurisdictions. Variations in regulatory transparency, data accessibility, and institutional disclosure among different countries also restrict the depth of the comparative analysis, particularly in examining enforcement practices, compliance mechanisms, and cross-border certification dynamics. Moreover, the study does not employ quantitative methods to measure the economic impact of fragmented halal standards, the cost implications for industry stakeholders, or the extent to which technological innovations such as blockchain and AI have been operationalized within real supply chain environments, thereby limiting the generalizability of its findings to conceptual and policy-level discussions.

Future research should incorporate empirical investigations—such as interviews with regulators, certification bodies, halal auditors, SMEs, and consumers—to validate conceptual findings and capture on-the-ground complexities in halal governance. Comparative case studies across key halal-producing and halal-importing countries would enrich understanding of enforcement gaps, institutional capacity, and certification interoperability. Quantitative economic analyses are also needed to assess the financial burden of multi-jurisdictional certification, the trade effects of technical barriers, and the economic benefits of harmonized standards or mutual recognition arrangements. Additionally, future studies should evaluate the real-world implementation of emerging technologies—including

blockchain traceability, AI-based auditing, smart contracts, and IoT monitoring—to determine their effectiveness, scalability, and regulatory acceptance within halal supply chains. Broader interdisciplinary inquiries comparing halal regulation with other ethical certification systems (organic, fair trade, ESG) may also offer valuable insights for constructing a more integrated and future-ready halal governance framework.

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